

**BY ORDER OF THE COMMANDER  
ARNOLD ENGINEERING  
DEVELOPMENT COMPLEX**



**ARNOLD ENGINEERING DEVELOPMENT  
COMPLEX INSTRUCTION 21-400**

**20 NOVEMBER 2012**

***Maintenance***

**ARNOLD ENGINEERING DEVELOPMENT  
COMPLEX LABORATORIES  
MANAGEMENT**

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(Col. Craig J. Priebe)

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This instruction is applicable to all government personnel planning, performing, or providing direction for accomplishment of laboratory operations. It documents the roles and responsibilities of the AEDC Maintenance Directorate (AEDC/MA) and Maintenance and Support Division (AEDC/MAO) in support of the AEDC mission as it provides laboratory services to customers. It describes and explains how to deliver laboratory services with regards to the guidelines of Aerospace Standard (AS) 9100 Rev. B, *Aerospace Quality Management Systems – Aerospace Requirements*. It identifies the requirements, processes, and management controls for laboratory operations. It is applicable to AEDC, where conformity with AS 9100B and requisite AEDC Instructions (AEDCIs) is required. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afrims/afrims/afrims/rims.cfm>. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF IMT 847s from the field through the appropriate functional chain of command.

***SUMMARY OF CHANGES***

Replaced OPR AEDC/MAT with AEDC/MAO. Removed AEDC-STD-MA-1 as a reference in this document. Added provisions to **paragraph 6.9** concerning stamp control. Replaced Section 8 “Forms” with “Metrics”. Added Laboratory Program Manager responsibilities to **paragraph**

5.4. Replaced Attachment 2, “Laboratory Workload Management” Flowchart, with “Audit” Flowchart.

**1. PURPOSE** This instruction outlines how government personnel at Arnold Engineering Development Complex (AEDC) will manage laboratory services performed at AEDC.

## **2. Responsibility and Authority**

2.1. **AEDC Commander.** Responsible for all laboratory work performed at AEDC to accomplish AEDC mission. Delegates responsibility for laboratory management to the Director of AEDC/MA.

2.2. **Director of Maintenance (AEDC/MA).** Responsible for oversight of the integration of laboratory work presented by AEDC Two-Letter (2-Ltr) organizations. Delegates management responsibility for the AEDC laboratories to the AEDC/MAO Division Chief.

2.3. **AEDC/MAO Division Chief.** Responsible for integration of laboratory requirements across AEDC. Assigns and delegates management of the AEDC Laboratories (Chemical Laboratory (Chem Lab), Nondestructive Examination (NDE) and Precision Measurement and Equipment Laboratory (PMEL)) to the AEDC Laboratories Project Manager (PM).

2.4. **AEDC Laboratories PM.** Responsible for the government surveillance of the center’s support contract pertaining to all facets of laboratory operations. Conducts audits on laboratories and develops Key Performance Indicators (KPIs) for input into the AEDC Award Fee Process. Responsible for the overall stewardship of all Test Measurement and Diagnostic Equipment (TMDE) across AEDC. Conducts on-site audits and facilitates improvements in the management of TMDE. Provides award fee input to AEDC/MAO Division Chief on contractor’s performance pertaining to laboratories and TMDE management at AEDC.

## **3. Procedures**

3.1. **Management of AEDC laboratory services is the responsibility of the government.** Contractor personnel perform the calibrations, chemical analysis, and related services. The management actions required of the government include, but are not limited to:

3.1.1. Identify, prioritize, and validate the annual laboratory workload.

3.1.2. Contract for labor, material, and services to perform the work.

3.1.3. Ensure that skills required for long-term, as well as short-term, AEDC mission needs are managed effectively.

3.1.4. Report progress in completing planned and required work within budgeted resources on a monthly, quarterly, and annual basis as part of the AEDC Quality Management Review, AEDC Program Management Review and the AEDC Award Fee processes. (AEDCI 64-100, Contract Management Quality System, and AEDCI 90-102, Quality Management Review Policy and Procedures)

3.1.5. Work closely with AEDC support contractors and other government personnel to ensure sustainment of the laboratories to support future mission requirements.

3.1.6. Review and evaluate contractor-submitted data.

3.1.7. Coordinate biennial PMEL certification audit with Air Force Metrology and Calibration (AFMETCAL) Program, Detachment (Det) 1.

3.2. Division Chief ensures that laboratory work is defined in a Performance Work Statement suitable for outsourcing laboratory services.

3.3. Division Chief submits the requirements and the work statements with appropriate funding documents to the AEDC Contracting Directorate (AEDC/PK) in accordance with (IAW) AEDCI 64-100.

3.4. Division Chief ensures that support contractors delivering laboratory services are evaluated, and Award Fee recommendations are made.

3.5. Laboratories PM develops work statements and contractual requirements for the operation of the labs and acquisition of lab resources, and works closely with the AEDC/PK IAW the processes in AEDCI 64-100.

3.6. Laboratories PM submits performance evaluation input to AEDC/MAO Division Chief. (AEDCI 64-100)

3.7. Laboratories PM ensures PMEL operates IAW: Air Force Instruction (AFI) 21-113, Air Force Metrology & Calibration (AFMETCAL) Program; Technical Order (T.O.) 00-20-14, Air Force Metrology & Calibration (AFMETCAL) Program; and T.O. 33K-1-100, Test, Measurement, and Diagnostic Equipment (TMDE) Interval, Calibration, and Repair.

3.8. Laboratories PM ensures Chem Lab operates IAW Occupational Safety and Health Association standards; T.O. 33-B-1-37, Joint Oil Analysis Program Manual; and T.O. 42B1-1-14, Fuels for USAF Aircraft.

3.9. Laboratories PM ensures PMEL maintains AFMETCAL certification as a Type IIC lab and Chem Lab maintains American Industrial Hygiene Association certification, as well as meeting the requirements of any other external audits.\*

3.10. Laboratories PM verifies control of calibration stamps by performing a minimum of two random inspections per year. The inspections will ensure an effective process exists to control the issuance of, and the physical control thereafter, of all calibration stamps used at AEDC.

#### 4. Records

**Table 1. Records**

Required Record	Custodian	Location
Performance Work Statement	AEDC/MAO	AEDC/MAO Local Server
TMDE Compliance Audit	AEDC/MAO	AEDC/MAO Local Server
TMDE Compliance Audit Review	AEDC/MAO	AEDC/MAO Local Server
PMEL Internal Audit	AEDC/MAO	AEDC/MAO Local Server
PMEL Internal Audit Review	AEDC/MAO	AEDC/MAO Local Server

#### 5. Metrics

5.1. Results of TMDE Compliance Audits will be maintained. The Laboratory PM will conduct a monthly review of the audits to ensure the following minimum criteria is met: A random sample of 30 items of TMDE is reviewed per month for compliance with T.O 00-20-14, and AFI 21-113. The results of each review with or without a finding are recorded.

When a critical finding is discovered, Root Cause Analysis (RCA) and a Corrective Action Plan (CAP) will be documented within 7 calendar days of the audit.

5.2. Results of PMEL Internal Audits will be maintained. The Laboratory PM will conduct a quarterly review of the audits to ensure the following minimum criteria is met: Internal Audits are performed annually. Audits include entire review of PMEL's Quality System, Quality Program, Environmental Control System, and Measurement Capability. The results of each audit will require a response from the Laboratory Manager within 15 calendar days of the completion date of the audit.

**6. Flowchart. NA**

DAVID L. STRINGER Brig Gen, USAF  
Commander

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AEDCI 64-100, Contract Management Quality System

AEDCI 90-102, Quality Management Review Policy and Procedures

AEDCI 99-100, Determine Customer Requirements

AFI 21-113, Air Force Metrology & Calibration (AFMETCAL) Program

T.O. 00-20-14, Air Force Metrology & Calibration (AFMETCAL) Program

T.O. 33-B-1-37, Joint Oil Analysis Program Manual

T.O. 33K-1-100, Test, Measurement, and Diagnostic Equipment (TMDE) Interval, Calibration, and Repair

T.O. 42B-1-1-14, Fuels for USAF Aircraft

***Adopted Form***

AF 847, *Recommendation for Change of Publication*;

***Acronyms and Abbreviations***

**AEDC**—Arnold Engineering Development Complex

**AFMETCAL**—Air Force Metrology and Calibration Program

**AIHA**—American Industrial Hygiene Association

**AS**—Aerospace Standard

**JOAP**—Joint Oil Analysis Program

**PMEL**—Precision Measurement Equipment Laboratories

**TMDE**—Test, Measurement, and Diagnostic Equipment

## Attachment 2

### AUDITS

Figure A2.1. Audits

